NOKIA
CONSUMER ELECTRONICS

Service-Manual

RC

1991

NOKIA RC 9571 Camping Cassette

IDENT-NO.: 5558 56 20

ITT -01569

LUXOR

IDENT-NO.: 5558 56 40

⚠ **Sicherheitsbauteil!**
Dieses Symbol kennzeichnet in den Schaltbildern alle Bauteile, die nur durch Originalteile ersetzt werden dürfen.

Bei Reparaturen gültige Sicherheitsvorschriften beachten!

⚠ **Safety Component!**
This symbol identifies in the circuit diagrams all safety critical parts. Replace only with specified part numbers.

Service and repair work to be performed only in accordance with existing safety regulations!

⚠ **Composant de protection!**
Ce symbol indique tous les composants dans les schémas,
qui doivent être remplacés uniquement par des pièces d'origines.

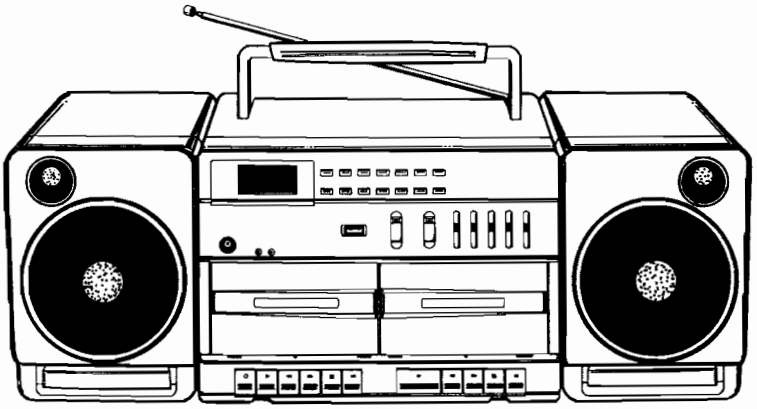
Pendant le dépannage respecter les régulations du sécurité!

1569

INHALTSVERZEICHNIS: **SEITE:**

■ ABBREVIATION

AC	:	Alternating Current
Addr	:	Address
AGC	:	Automatic Gain Control
ALC	:	Automatic Level Control
AM	:	Amplitude Modulation
AMP	:	AMPlifier
ANT	:	ANTenna
ASSY	:	ASSembIY
BAL	:	BALance
BLK	:	BLacK
BLU	:	BLUe
BPF	:	Band Pass Filter
BRKT	:	BRacKeT
CF	:	Ceramic Filter
ch	:	channel
cm	:	centimeter
COM	:	COMmon
CON MIC	:	CONdenser MICrophone
D	:	Depth
dB	:	deciBel
DC:	:	Direct Current
DEC	:	DECoder
DET	:	DETector
DEV	:	DEViation
DTS	:	Digital Tuning System
EA	:	EAch
E-HEAD	:	Erase HEAD
FF	:	Fast Forward
F/F	:	Flip Flop
Fig	:	Figure
FM	:	Frequency Modulation
GND	:	GrouND
GRN	:	GReeN
GRY	:	GRaY
H	:	Height, High
Hz	:	Hertz
IC	:	Integrated Circuit
IF	.	Intermediate Frequency
IFT	:	Intermediate Frequency Transformer
I/O	:	Input/Output
KHz	:	KilloHertz
Kg	:	Kilogram
L	:	Left, Low
LCD	:	Liquid Crystal Display
LED	:	Light Emitting Diode
LPF	:	Low Pass Filter
LW	:	Long Wave
Max	.	Maximum
MHz	:	MegaHertz
min	:	minimum
MIX	:	MIXer
mm	:	millimeter
MOD	:	MODulation
MPX	:	MultiPleX
MW	:	Medium Wave
NF	:	Negative Feedback
ORG	:	ORanGe
OSC	:	OSCillator
PB	:	PlayBack
PCB	:	Printed Circuit Board
PLL	:	Phase Lock Loop
P/T	:	Power Transformer
R	:	Right
RAM	:	Random Access Memory
REC	:	RECord
REG	:	REGulator
REW	:	REWind
RF	:	Radio Frequency
ROM	:	Read Only Memory
R/P	:	Record/Play
sec	:	second
SSG	:	Standard Signal Generator
ST	:	STereo
ST/EJT	:	STop/EJecT
SW	:	SWitch, Short Wave
TP	:	Test Point
TR	:	TRansistor
TRANS	:	TRANSformer
V	:	Volt
VIO	:	VIOlet
VCO	:	Voltage Controlled Oscillator
VOL	:	VOLume
Vpp	:	Voltage peak to peak
VR	:	Volume
Vref	:	REFerence Volgate
V/SEL	:	Voltage SELector
VTVM	:	Vacuum Tube Volt Meter
VVC	:	Voltage Variable Capacitance
W	:	Watt, Weitht
WHT	:	WHiTe
X	:	crystal
YEL	:	YELlow



SPECIFICATION

RADIO

Frequency range	FM: 87.5-108MHz
	FM(OIRT): 64-75MHz
	AM(MW): 530-1610KHz
	(531-1602)KHz
	LW: 146-281KHz
	SW: 5.95-15.6MHz
I.F.	FM: 10.7MHz
	SW/AM(MW)/LW: 450KHz
Antenna	FM/SW: Telescopic rod antenna
	AM(MW)/LW: Ferrite bar antenna

TAPE

Track system	: 4 track 2 channel
Recording system	: AC bias (DECK A)
Erasing system	: Magnetic erasing (DECK A)
Monitor system	: Variable monitor
Frequency response	: Normal 50-6300Hz
	CrO_2/METAL (PB) 50-10000Hz
Tape speed	: 4.75cm/sec (Normal speed)
	9.5cm/sec (High speed)
Tape drive system	: Capstan belt driven
Tape loading system	: Front loading
Motor system	: DC synchronous
	2 speed motor (DC 9V)

GENERAL

Frequency response	: 20-20000Hz
Speaker	: Woofer : ø 100mm x 2 (3.2 Ω)
	Tweeter : ø 27mm x 2
Max output	: 4W (2W x 2)
Power source	: AC: See label rating
	DC: 9V (D, UM1, HP2 x 6)
	DC: 4.5V (AA x 3)
	— For memory back up.
Power consumption	: 10W
Dimension	: 594(W) x 205(H) x 165(D)mm
Weight	: 3.5Kg (Without batteries)
Headphone jack	: ø 3.5mm

Design and specifications are subject to change without notice.

■ SERVICING NOTES

1. Prevent shock hazard by unplugging power supply cord before opening cabinet.
2. Avoid repairing under direct sunshine and heat which may cause cabinet, transistor and IC to be transformed or misoperate.
3. Use a soft cotton swab moistened with warm water or neutral cleaner when parts of unit need to be cleaned.
4. Be sure to use identical replacement parts, especially for critical parts in the unit since many parts in the unit have special safety characteristics marked by ⚠ in the circuit diagram and parts list.
5. Avoid repairing the set near TV or any other magnetic forces.
6. Disconnect immediately the plug from wall socket during electric storm to reduce the risk of damage.
7. Be careful of electrostatic source when using control IC.
8. Remember that if AC power source is unplugged without inserting 3 small dry cell batteries (AA type), the CLOCK and MEMORY Function will not operate.

■ GENERAL INFORMATION

1. DIGITAL TUNING SYSTEM
   The station will be searched quickly and by just pressing the button.

2. MEMORY FUNCTION
   A maximum of 10 stations can be memorized by the unit (FM). Therefore selection can be made at your own convenience.

3. MEMORY SCAN
   You will find out what was memorized in the unit by pressing the ME/SCAN button and the 10 stations which have been memorized will be heard for about 5 seconds each.

4. TIMER FUNCTION
   If a certain time is set, the unit will turn on and off automatically.

5. DIGITAL CLOCK
   Digital clock will operate without connecting AC/DC power source if you use small batteries.

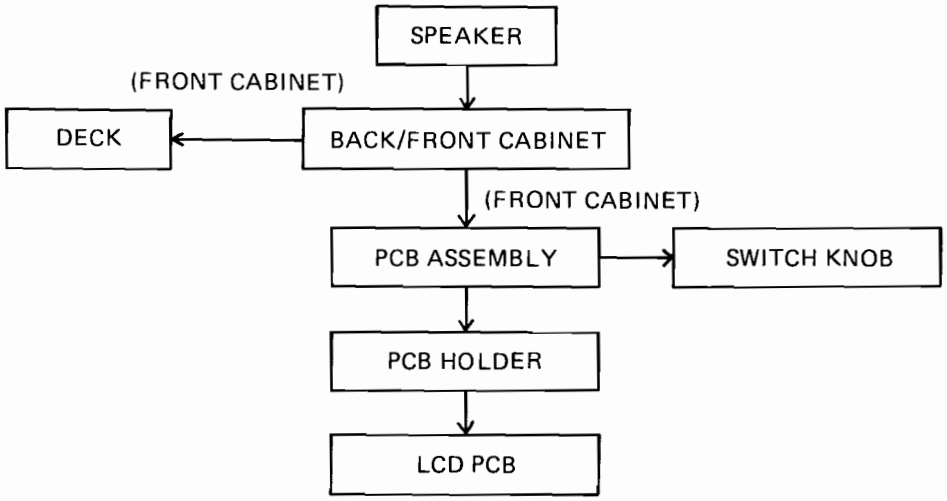
6. CONTINUOUS PLAY
   Transfer of playback from DECK B to DECK A is made automatically.

7. HIGH SPEED DUBBING RECORDING
   Recorded tapes can be copied at double the speed of normal speed.

8. 3 BAND GRAPHIC EQUALIZER
   You can appreciate the sound at your own taste by controlling the graphic equalizer.

9. DETACHABLE SPEAKER
   Speakers can be used separately at your convenience.

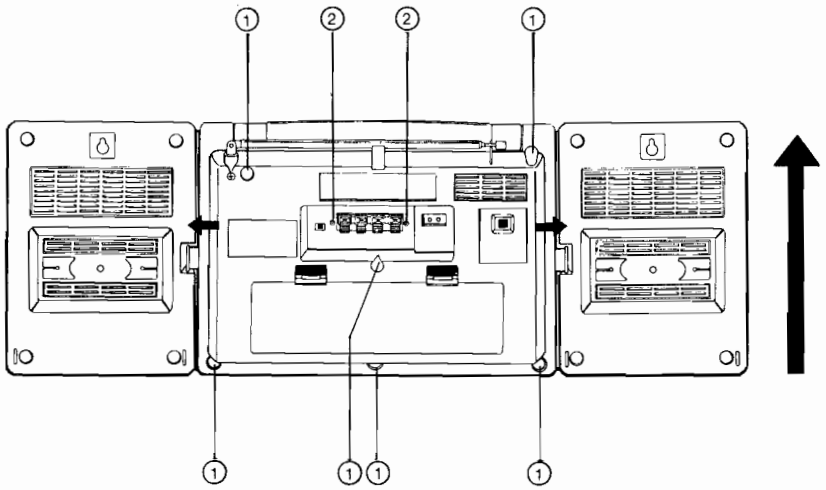
■ DISASSEMBLY INSTRUCTION



- **Before disassembling the unit.**

  Remove batteries and AC cord.

- **Disassembly procedure**

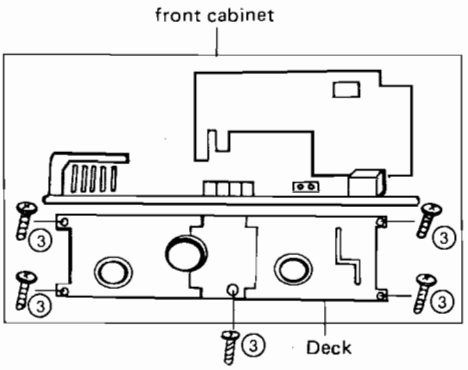


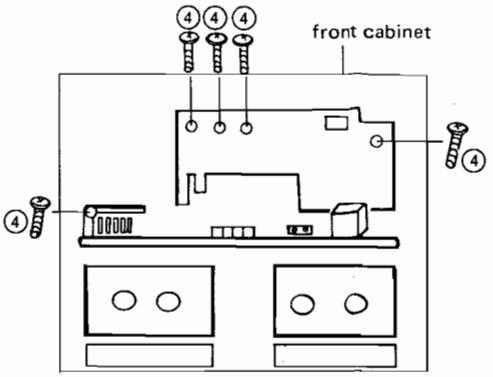
1. Main speaker

1. Disconnect speaker wire from speaker jack.
2. Pull speaker locking knob with finger and separate speaker by pulling it upward.

2. Front/Back cabinet

1. Remove 6 screws (①) from the back cabinet.
2. Remove 2 screws (②) at both sides of speaker jack.
3. Pull back cabinet about half way and disconnect connector connecting main PCB to FM rod antenna.
4. Disconnect two connectors connecting battery PCB to main PCB.



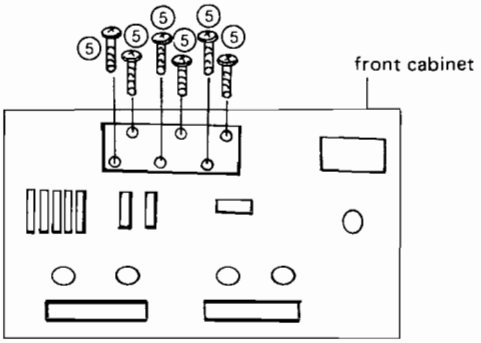


3. Deck

1. Remove 5 screws (③) connecting front cabinet to deck.
2. Disconnect 3 connectors connected to main PCB and open A.B door.

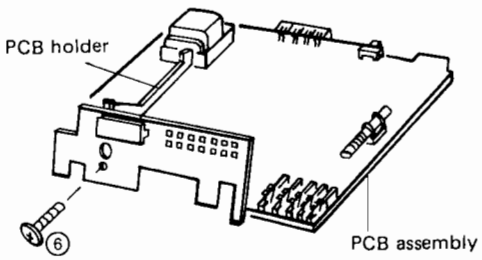
4. PCB assembly

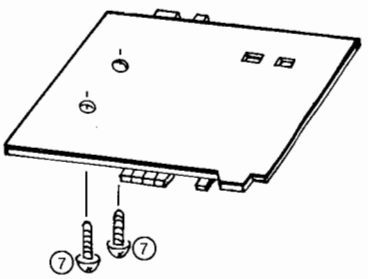
1. Remove 5 screws (④) connecting front cabinet to LCD PCB.
2. Take out the PCB assembly.



5. Switch knob

1. Remove 6 screws (⑤) from the top of front cabinet.





6. LCD PCB

1. Remove 1 screw (⑥) from the LCD PCB.
2. Remove 2 screws (⑦) from the pattern side of the main PCB and pull up the PCB holder.
3. Pull LCD PCB up and remove.

■ BASIC CIRCUIT OPERATION

This section briefly explains the operation of the Digital Tuning System (D.T.S) which will help you repair the unit.

1. BASIC OPERATION OF DIGITAL TUNING SYSTEM

1) Function

① DTS CONTROLLER (IC701)
It is composed of a LCD operating part, key matrix part controlled by user, control part that receives data from the tuner, compares the data and corrects some errors after comparing them and the part which carries out the function user wants. (refer to IC's block diagram).

② LPF (Low Pass Filter, Q703, Q704)
It directly controls voltage going into varactor controlled by the DTS controller. That is, it receives error correction signals from the DTS controller and controls DC voltage coming from DC/DC converter (Q301, Q302, T301), and varies voltage going into the varactor, searching the frequency required by DTS controller and maintaining it.

③ DC/DC CONVERTER (Q301, Q302, T301)
It is a circuit maintaining the basic voltage to vary the varactor diode and it converts voltage from low to high. (9–10V)

④ FM OSC (Q705), AM OSC (Q706), IF BUFFER AMP (Q702)
It makes DTS controller recognize by amplifying oscillation and IF signal and it is equivalent to outside data received by DTS controller.

⑤ VARACTOR DIODE (D3, D4, D202, D203)
It is a diode which varies it's capacitance by reverse voltage and it corresponds to varicon of existing analog tuning system.

2) FM OPERATION (Receiving frequency of 89.1MHz)

① Set the unit 89.1MHz with key matrix. It is shown on LCD and it is equivalent to data input.

② If the unit receives 95.9MHz, local oscillator (D3) of FM front end (IC1) oscillates frequency of 106.6MHz (95.9MHz + 10.7MHz).

③ The frequency you would like to receive (89.1 + 10.7MHz) is recognized in the DTS controller. If the frequency read by ② is different from the one required by the DTS controller, the voltage applied to the varactor is changed until the frequency desired by DTS controller can be obtained by generating error correction signal commensurate to the phase comparator through the pin 33 of IC701 and by controlling LPF. This operation is repeated until the frequency correctly corresponds with the one desired by the DTS controller and the voltage going into varactor is converted by producing an error correction signal. When the frequency conforms to the one desired, all operation stops, of course and the voltage applied to varactor is maintained.

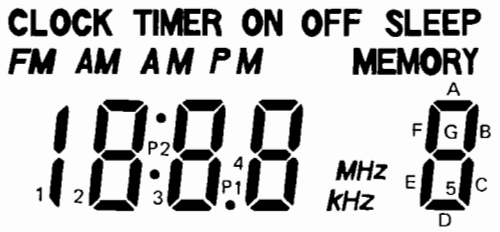
④ AM OPERATION
If the desired frequency is not acquired after counting frequency of local oscillator, the voltage applied to varactor (D202, D203) by LPF after being controlled by DTS controller is converted.
Converting voltages going into varactor is repeated until the frequency desired is obtained.

2. LCD SEGMENT DESCRIPTION

If one or all of the LCD segments (see segment diagram below) don't.work, check if IC701 and LCD pins are properly connected refering to the chart below.

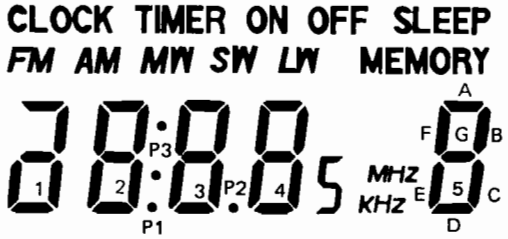
1) 2 BAND

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
COM1	COM1				C5	D5	C4	D4	C3	D3	C2	D2	PM	AM	AM KHz
COM2		COM2			G5	E5	G4	E4	G3	E3	G2	E2	P2		FM P1 MHz
COM3			COM3		B5	F5	B4	F4	B3	F3	B2	F2	BC1		
COM4				COM4	A5	MEMORY	A4	SLEEP	A3	OFF	A2	ON	TIMER		CLOCK



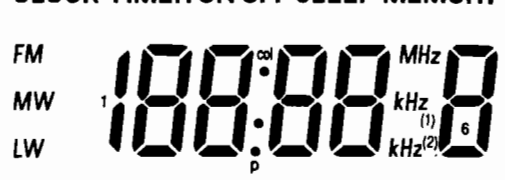
2) 3 BAND

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
COM1	COM1				C5	D5	C4	D4	C3	D3	C2	D2	C1		MW	AM	P1	5
COM2		COM2			G5	E5	G4	E4	G3	E3	G2	E2	ADEG1				P3	FM P2
COM3			COM3		B5	F5	B4	F4	B3	F3	B2	F2	B1	LW				KHz
COM4				COM4	A5	MEMORY	A4	SLEEP	A3	OFF	A2	ON	TIMER	SW			CLOCK	MHz



3) OIRT BAND

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COM1	COM1				6c	6d	5c	5d	4c	4d	3c	3d	2c	2d	PM	COL
COM2		COM2			6g	6e	5g	5e	4g	4e	3g	3e	2g	2e	AM	FM,P MHz
COM3			COM3		6b	6f	5b	5f	4b	4f	3b	3f	2b	2f	1bc	MW KHz(1)
COM4				COM4	6a	MEMORY	5a	SLEEP	4a	OFF	3a	ON	2a	TIMER	CLOCK	LW KHz(2)



3. MICOM PIN DESCRIPTION

: TC9307AF-004 (DTS CONTROLLER)
TC9307AF-012 (OIRT DTS CONTROLLER)

PIN NO.	PIN NAME	PIN FUNCTION
1, 2, 43, 44	K0 – K3	4 bit input port for inputting key matrix
3 – 8	T0 – T5	6 bit output port for key return timing
9	V_{LCD}	Offer 3V regular voltage for operating LCD
10 – 13	COM1 – COM4	Output port for operating LCD with 1/4 duty, 1/3 bias.
14 – 23	S1 – S9	Output port for operating LCD with 1/4 duty, 1/3 bias.
24, 25	S10/P22, S11/P21	Output port of I/O and segment output
26, 27	P20/S12, P13/S13	Output port of I/O and segment output
28 – 30	P10 – P12	I/O port with 3 bit
31	MUTE	Offer muting control signal of 1 bit
32	IF_{IN}/IN	Input port of IF signal of 16 bit IF counter Input frequency: 0.3 – 12MHz (0.4V p-p min)
33, 34	DO1, DO2	Output port of phase comparator of PLL
35	INH	Select radio mode "H" level : radio on mode "L" level : radio off mode
36	FM_{IN}	Prescaler input port during FM mode 50 – 130MHz (VCO output) comes in
38	AM_{IN}	Programmable counter input during AM mode

4. REPAIR POINT ABOUT DEFECT

SYMPTOM	CAUSE	CHECK POINT
Wrong lettres and numbers displayed on LCD.	Crystal malfunction.	① Check the voltage pin No. ⑨ at IC701. ② Check the frequency of pin No. ㊵ , ㊶ (75KHz).
No tuning operation and only noise is heard.	① DTS controller does not permit oscillation frequency. ② LPF malfunction.	① Check the voltage at Q705 (FM), Q706 (AM). ② Check Q703, Q704.
Only low frequency received. Failure of AUTO program.	DC/DC converter not operating ① Bad sensitivity. ② IF buffer amp not operating.	Check Q301, Q302, T301. ① Check alignment. ② Check Q702.

■ ALIGNMENT LOCATION

1. INSTRUMENTS AND TOOLS

1) AM STANDARD SIGNAL GENERATOR
   : 100KHz – 35MHz, 400Hz, 30% MOD
2) FM STANDARD SIGNAL GENERATOR
   : OUTPUT IMPEDANCE 75 OHMS, 400Hz, 22.5KHz DEV.
3) FM/AM IF GENERATOR: 10.7MHz, 450KHz
4) OSCILLOSCOPE
5) OUTPUT METER: LEVEL METER OR AC VOLTMETER. (VTVM)
6) FREQUENCY COUNTER
7) LOOP ANTENNA
8) DUMMY LOAD (3.2 OHMS)
9) DC VOLT METER

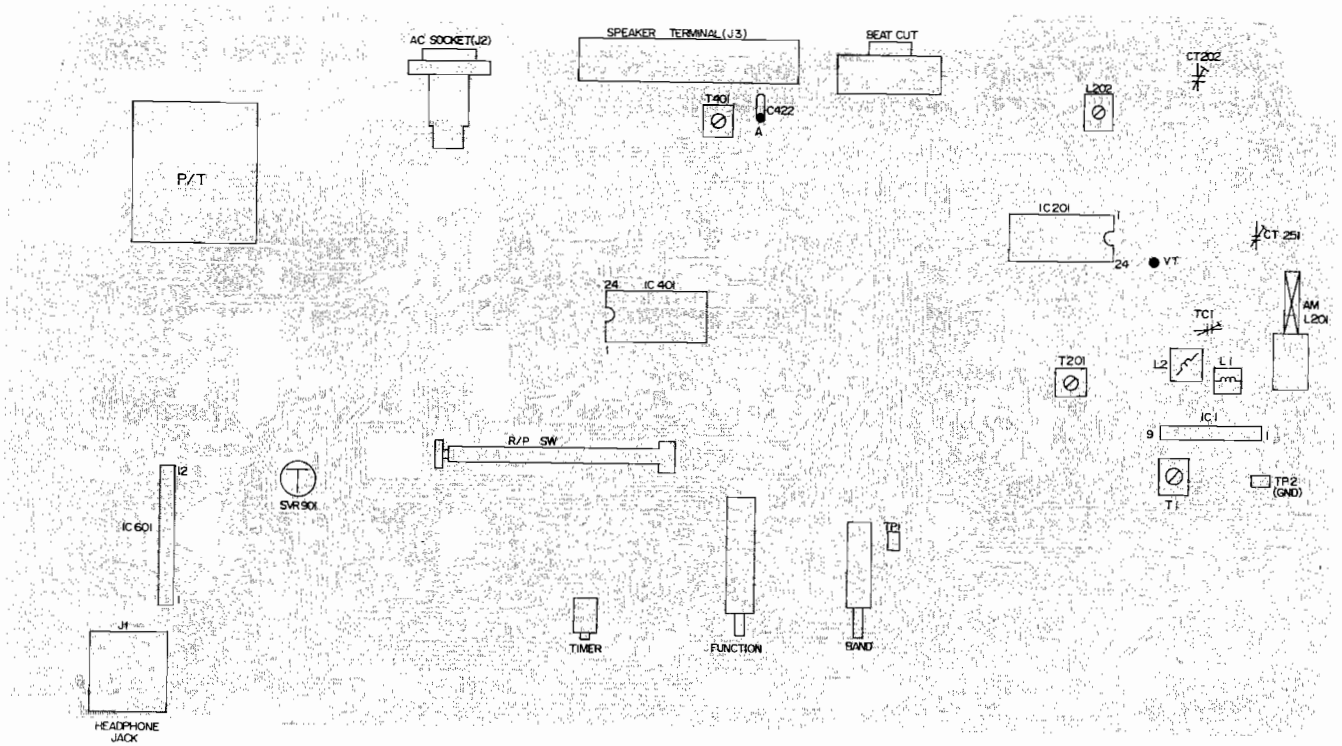
2. IMPORTANTS

1) Check the power source voltage.
2) Set the "FUNCTION" and "BAND" switch to a band to be aligned.
3) The "EQUALIZER", "VOLUME" and "BALANCE" control should be turned to the mid position.
4) The standard modulation is the 30% with 400Hz signal for AM and is the 22.5KHz deviation with 400Hz signal for FM.
5) The standard output is 50mW (3.2 OHMS).

3. LOCATION OF ADJUSTMENT POINT (MAIN PCB: PARTS SIDE)

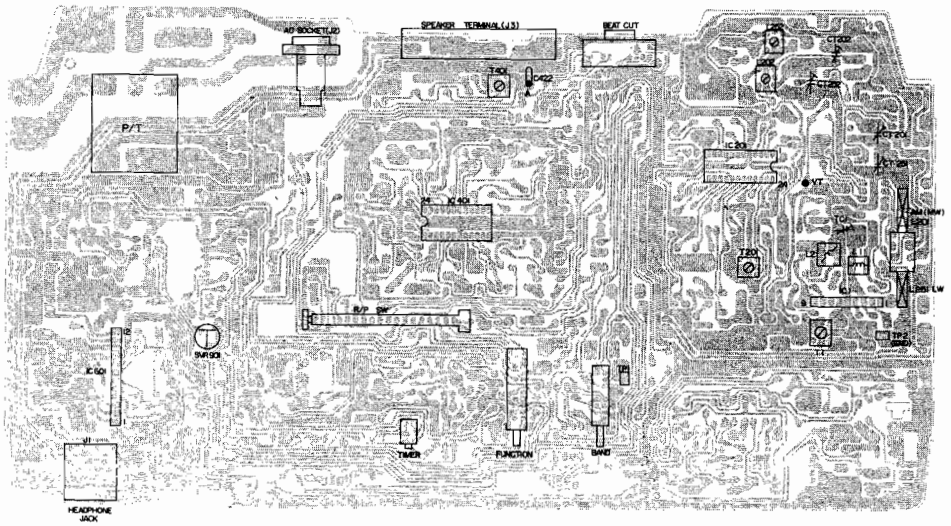
1) FM/AM BAND

T1	:	FM IFT COIL (10.7MHz)
T201	:	AM IFT COIL (450KHz)
L1	:	FM RF COIL (90MHz)
L2	:	FM OSC COIL (87.5MHz)
TC1	:	FM ANT TRIMMER (106MHz)
SVR901	:	TAPE SPEED ADJUSTMENT
A	:	REC BIAS ADJUSTMENT
L201	:	AM ANT COIL (600 or 603KHz)
L202	:	AM OSC COIL (530 or 531KHz)
CT202	:	AM OSC TRIMMER (1610 or 1602KHz)
CT251	:	AM ANT TRIMMER (1400 or 1404KHz)
VT	:	POINT OF CHECKING VOLTAGE
T401	:	RECORD BIAS COIL (50KHz)



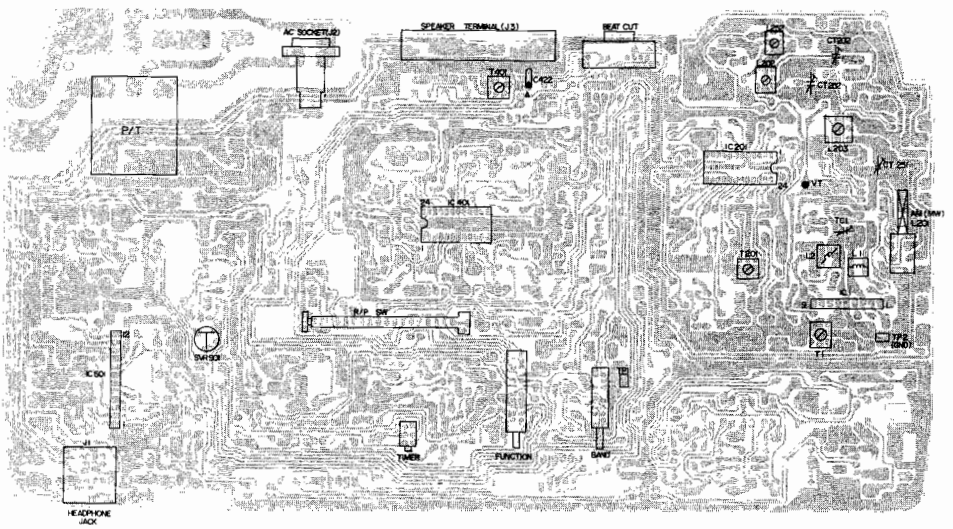
2) FM/MW/LW BAND

T1	:	FM IFT COIL (10.7MHz)
L2	:	FM OSC COIL (87.5MHz)
L1	:	FM RF COIL (90MHz)
TC1	:	FM ANT TRIMMER (106MHz)
T201	:	MW/LW IFT COIL (450KHz)
L202	:	MW OSC COIL (531KHz)
CT202	:	MW OSC TRIMMER (1602KHz)
L201	:	MW ANT COIL (603KHz)
CT251	:	MW ANT TRIMMER (1404KHz)
L252	:	LW OSC COIL (146KHz)
CT252	:	LW OSC TRIMMER (281KHz)
L251	:	LW ANT COIL (164KHz)
CT201	:	LW ANT TRIMMER (263KHz)
VT	:	POINT OF CHECKING VOLTAGE
SVR901	:	TAPE SPEED ADJUSTMENT
T401	:	RECORD BIAS COIL (50KHz)
A	:	REC BIAS ADJUSTMENT



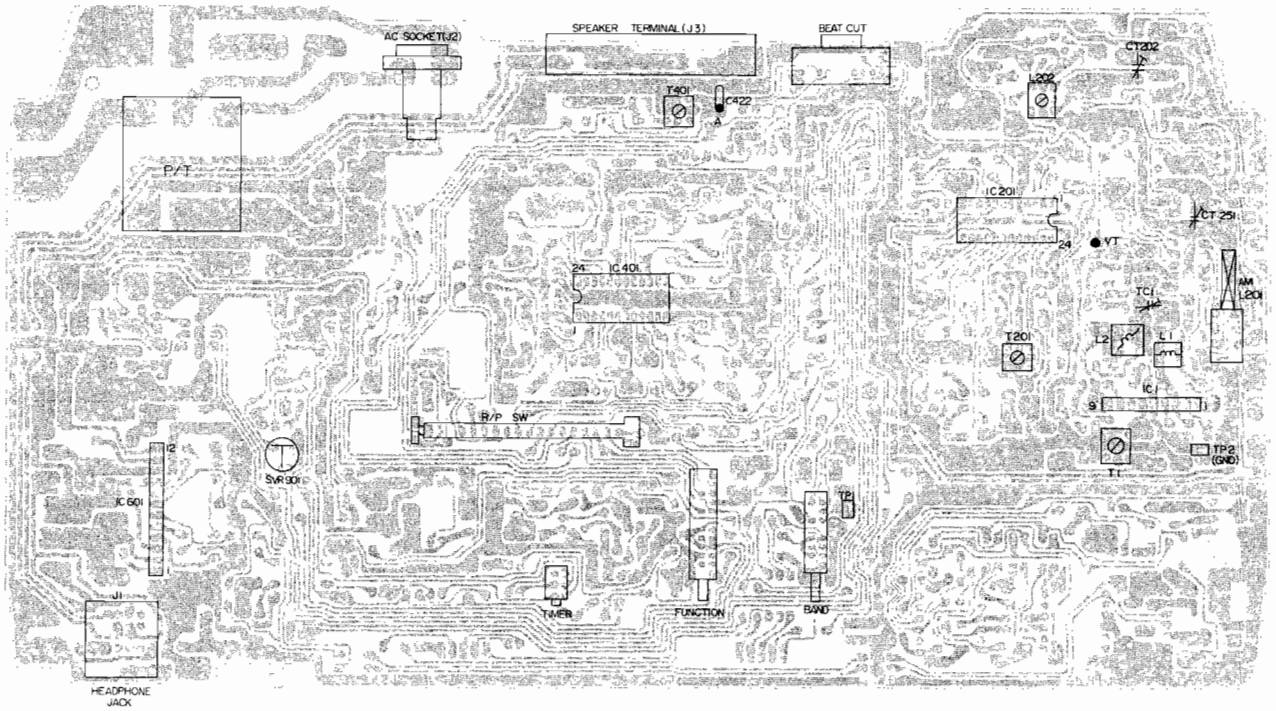
3) FM/SW/AM BAND

T1	:	FM IFT COIL (10.7MHz)
L2	:	FM OSC COIL (87.5MHz)
L1	:	FM RF COIL (90MHz)
TC1	:	FM ANT TRIMMER (106MHz)
T201	:	SW/AM IFT COIL (450KHz)
L252	:	AM OSC COIL (530 or 531KHz)
CT252	:	AM OSC TRIMMER (1610 or 1602KHz)
L201	:	AM ANT COIL (600 or 603KHz)
CT251	:	AM ANT TRIMMER (1400 or 1404KHz)
L202	:	SW OSC COIL (5.95MHz)
CT202	:	SW OSC TRIMMER (15.6MHz)
L203	:	SW ANT COIL (6.5MHz)
VT	:	POINT OF CHECKING VOLTAGE
SVR901	:	TAPE SPEED ADJUSTMENT
T401	:	RECORD BIAS COIL (50KHz)
A	:	REC BIAS ADJUSTMENT



4) FM/MW/LW BAND (OIRT BAND)

T1	:	FM IFT COIL (10.7MHz)
L2	:	FM OSC COIL (65MHz)
L1	:	FM RF COIL (67.1MHz)
TC1	:	FM ANT TRIMMER (72.5MHz)
T201	:	MW/LW IFT COIL (450KHz)
L202	:	MW OSC COIL (531KHz)
CT202	:	MW OSC TRIMMER (1602KHz)
L201	:	MW ANT COIL (603KHz)
CT251	:	MW ANT TRIMMER (1404KHz)
L252	:	LW OSC COIL (146KHz)
CT252	:	LW OSC TRIMMER (281KHz)
L251	:	LW ANT COIL (164KHz)
CT201	:	LW ANT TRIMMER (263KHz)
VT	:	POINT OF CHECKING VOLTAGE
SVR901	:	TAPE SPEED ADJUSTMENT
T401	:	RECORD BIAS COIL (50KHz)
A	:	REC BIAS ADJUSTMENT



■ ADJUSTMENT

1. FM ADJUSTMENT

Circuit to be Adjusted	Measuring Instrument & Arrangement	Step	S.S.G Frequency	Radio Freq. Setting	Adjusting point	Adjust for
Intermediate Frequency	Connect the FM IF generator to body of IC1, and take out the signal from FM IF output terminal. (see Fig. 1)	1	10.7MHz	87.5MHz (LOW END)	T1 FM IFT COIL	Max gain and symmetrical "S" curve
		2	Repeat step 1 until the "S" curve doesn't change from low frequency to high.			
Frequency coverage	Connect FM signal generator to "FM ANT (TP1)" thru a 75 ohm matching network. Connect speaker to output meter (VTVM) across 3.2 ohm load. (see Fig. 2)	3	87.5MHz	87.5MHz (LOW END)	L2 FM OSC COIL	VT: 2.0V ± 0.05V
		4	108MHz	108MHz (HIGH END)	Need not adjust.	VT: 7.8V–9V confirmation
		5	Repeat steps 3 and 4 to obtain optimum frequency range.			
Tracking	Same as frequency coverage.	6	90MHz	Tune to signal (90MHz)	L1 FM RF COIL	Maximum output
		7	106MHz	Tune to signal (106MHz)	TC1 FM ANT TRIMMER	Maximum output
		8	Repeat steps 6 and 7 to obtain suitable sensitivity at 90MHz and 106MHz.			

FM IF OUTPUT: IC201 PIN NO. 19 or 13

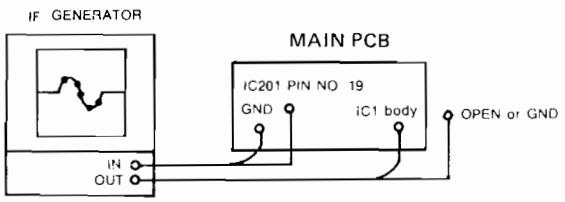


Fig. 1 FM IF

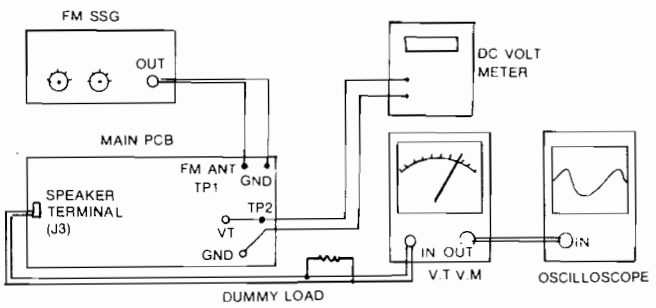


Fig 2. FM COVERAGE, TRACKING

2. FM (64-75MHz) ADJUSTMENT (OIRT BAND)

Circuit to be Adjusted	Measuring Instrument & Arrangement	Step	S.S.G Frequency	Radio Freq. Setting	Adjusting point	Adjust for
Intermediate Frequency	Connect the FM IF generator to body of IC1, and take out the signal from FM IF output terminal. (see Fig. 1)	1	10.7MHz	65.0MHz (LOW END)	T1 FM IFT COIL	Max gain and symmetrical "S" curve
		2	Repeat step 1 until the "S" curve doesn't change from low frequency to high.			
Frequency coverage	Connect FM signal generator to "FM ANT (TP1)" thru a 75 ohm matching network. Connect speaker to output meter (VTVM) across 3.2 ohm load. (see Fig. 2)	3	65.0MHz	65.0MHz (LOW END)	L2 FM OSC COIL	VT: 0.7V ± 0.05V
		4	74MHz	74MHz (HIGH END)	Need not adjust.	VT: 4.0V-5.0V confirmation
		5	Repeat steps 3 and 4 to obtan optimum frequency range.			
Tracking	Same as frequency coverage.	6	67.1MHz	Tune to signal (67.1MHz)	L1 FM RF COIL	Maximum output
		7	72.5MHz	Tune to signal (72.5MHz)	TC1 FM ANT TRIMMER	Maximum output
		8	Repeat stpes 6 and 7 to obtain suitable sensitivity at 67.1MHz and 72.5MHz.			

FM IF OUTPUT : IC201 PIN NO. 19 or 13

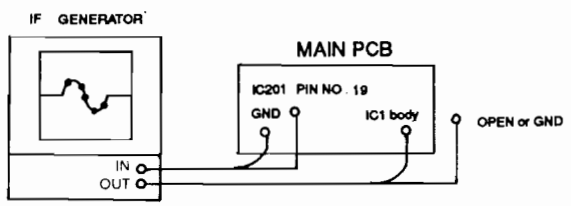


Fig. 1 FM IF

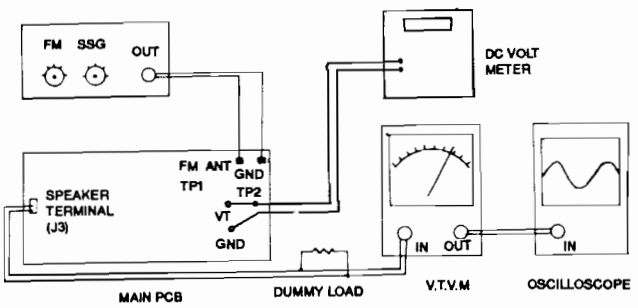


Fig 2. FM COVERAGE, TRACKING

3. 2 BAND (FM/AM) AM ADJUSTMENT

Circuit to be Adjusted	Measuring Instrument & Arrangement	Step	S.S.G Frequency	Radio Freq. Setting	Adjusting point	Adjust for
Intermediate Frequency	Connect the FM/AM IF generator to the loop ANT. Couple the AM ANT coil close to the loop ANT and take the signal from AM IF out point (IC201 pin NO 19) (See Fig. 3).	1	450KHz	Tune to the LOW END (530 or 531KHz)	T201 AM IFT COIL	Maximum output and best "V" curve.
		2	Repeat until no further improvement can be made.			
AM frequency coverage	Connect the AM signal generator to the loop antenna, VTVM and oscilloscope as Fig. 4.	3	530KHz (or 531KHz)	Tune to the LOW END (530 or 531KHz)	L202 AM OSC COIL	VT: 1.3V ± 0.05V
		4	1610KHz (or 1602KHz)	1610 or 1602KHz (HIGH END)	CT202 AM OSC TRIMMER	VT: 7.8V ± 0.05V
		5	Repeat steps 3 and 4 several times.			
AM Tracking	See Fig 4.	6	600KHz (603KHz)	Tune to signal (600KHz or 603KHz)	L201 AM ANT COIL	Maximum output
		7	1400KHz (1404KHz)	Tune to signal (1400KHz or 1404KHz)	CT251 AM ANT TRIMMER	Maximum output
		8	Repeat steps 6 and 7 to obtain suitable sensitivity at 600KHz (603KHz) and 1400KHz. (1404KHz).			

AM IF OUTPUT : IC201 PIN NO 19 or 13

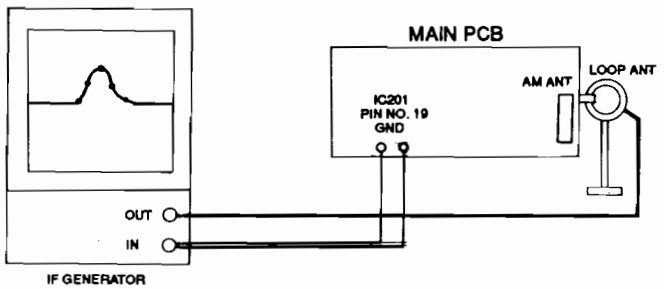


Fig 3. AM IF

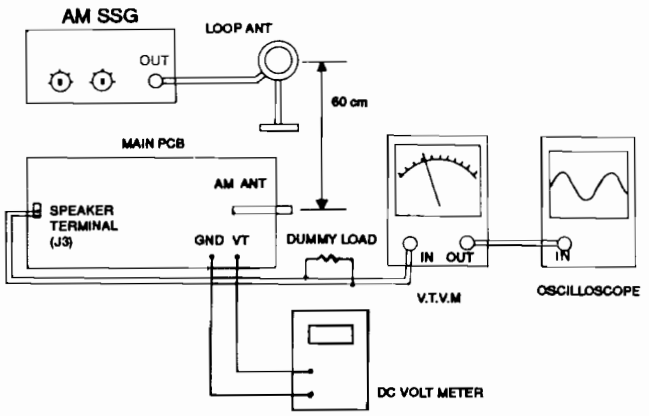


Fig. 4 AM COVERAGE, TRACKING

4. 3 BAND (FM/MW/LW) MW(AM)/LW ADJUSTMENT

Circuit to be Adjusted	Measuring Instrument & Arrangement	Step	S.S.G Frequency	Radio Freq. Setting	Adjusting point	Adjust for
IF	IF adjustment is the same as 2 band's.					
MW(AM) frequency coverage	Same as 2 Band's.					
MW(AM) tracking	Same as 2 band's.					
LW frequency coverage	See Fig. 4.	1	146KHz	Tune to signal (146KHz)	L252 LW OSC COIL	VT: 1.0V ± 0.05V
		2	281KHz	Tune to signal (281KHz)	CT252 LW OSC TRIMMER	VT: 4.6V ± 0.05V
		3	Repeat steps 1 and 2 several times.			
LW tracking	See Fig. 4.	4	164KHz	Tune to signal (164KHz)	L251 LW ANT COIL	Maximum output
		5	263KHz	Tune to signal (263KHz)	CT201 LW ANT TRIMMER	Maximum output
		6	Repeat steps 4 and 5 to obtain suitable sensitivity at 164KHz and 263KHz.			

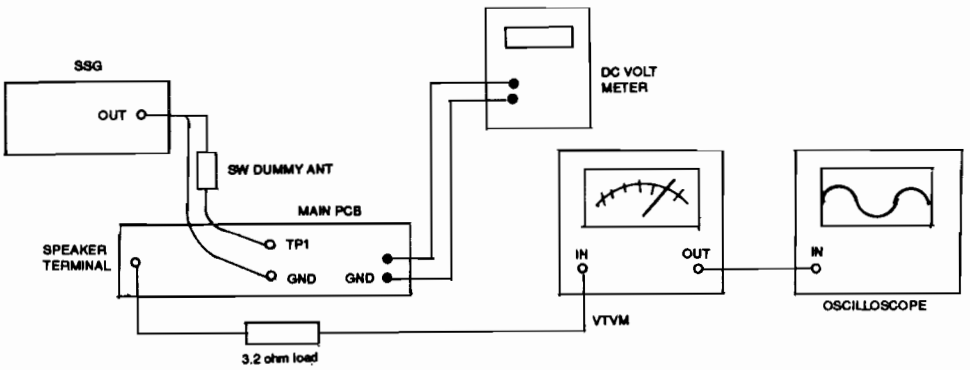


Fig 5.SW COVERAGE, TRACKING

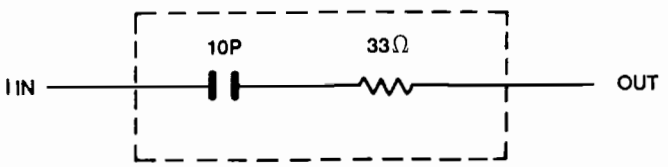


Fig 6. SW DUMMY ANT

5. 3 BAND (FM/SW/AM) AM/SW ADJUSTMENT

Circuit to be Adjusted	Measuring Instrument & Arrangement	Step	S.S.G Frequency	Radio Freq. Setting	Adjusting point	Adjust for
IF	IF adjustment is the same as 2 band's.					
AM frequency coverage	Same as 2 band's. (See Fig. 4)	1	530KHz (531KHz)	LOW END (530 or 531KHz)	L252 AM OSC COIL	VT: 1.0V ± 0.05V
		2	1610KHz (1602KHz)	HIGH END (1610 or 1602KHz)	CT252 AM OSC TRIMMER	VT: 8.0V ± 0.05V
		3	Repeat steps 1 and 2 several times.			
AM tracking	Same as 2 band's. (see Fig. 4).	4	600KHz (603KHz)	Tune to signal (600 or 603KHz)	L201 AM ANT COIL	Maximum output
		5	1400KHz (1404KHz)	Tune to signal (1400 or 1404KHz)	CT251 AM ANT TRIMMER	Maximum output
		6	Repeat stpes 4 and 5 to obtain suitable sensitivity at 600KHz (603KHz) and 1400KHz (1404KHz).			
SW frequency coverage	Connect the AM(SW) signal generator to the SW ANT terminal (TP1) thru SW dummy ANT. Connect the speaker output to the VTVM across the 3.2 ohm load. (see Fig. 5. Fig. 6)	7	5.95MHz	Tune to signal (5.95MHz)	L202 SW OSC COIL	VT: 2.8V ± 0.05V
		8	15.6MHz	Tune to signal (15.6MHz)	CT202 SW OSC TRIMMER	VT: 8.0V ± 0.05V
		9	Repeat stpes 7 and 8 several times.			
SW tracking	See Fig. 5, Fig. 6.	10	6.5MHz	Tune to signal (6.5MHz)	L203 SW ANT COIL	Maximum output
		11	14MHz	Tune to signal (14MHz)		

6. RECORDING/PLAYBACK HEAD AZIMUTH ADJUSTMENT.

1) Use test tape MTT 113C for azimuth adjustment.
2) Connect VTVM and oscilloscope to speaker terminal (J3) of main PCB (Fig. 7).
3) Insert the test tape into DECK A and play.
   Adjust adjustment screw like figure 8 so the output becomes maximum value. If the output of each channel differs, adjust to the same phase.
4) Follow the same procedure 1) – 3) described above for DECK B.
5) Lock the adjustment screw with the adhesives after adjustment.

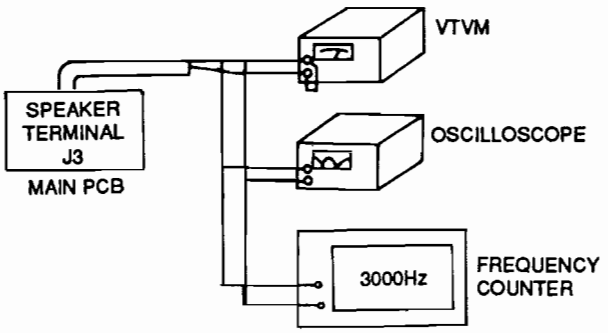


Fig. 7 AZIMUTH. SPEED

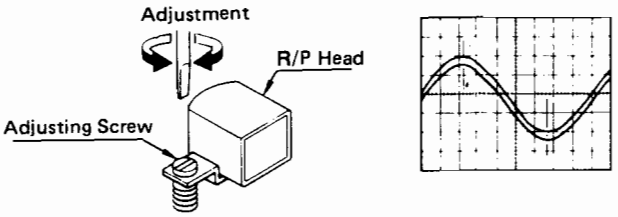


Fig. 8 AZIMUTH ADJUSTMENT

7. TAPE SPEED ADJUSTMENT

1) Connect frequency counter and oscilloscope to speaker terminal (J3) as shown Fig.7 so that the wave form and frequency can be observed.
2) Adjust semi-volume SVR901 so the frequency counter reads 3KHz while playing the test tape (MTT-111, 3KHz) in DECK B.
3) Insert a test tape into DECK A and check if the frequency counter reads 3KHz ± 30Hz.
4) Insert a test tape into DECK B and set DECK A in the recording position. See if tape speed reaches about 6KHz (5400Hz – 6600Hz) in the high speed dubbing.

8. RECORDING BIAS ADJUSTMENT.

1) Connect the frequency counter to C422 of T401 (Bias Coil) as shown in the figure 9.
2) Press [RECORD] button (●) of DECK A (or push R/P switch) and adjust T401 so the frequency becomes 50KHz.

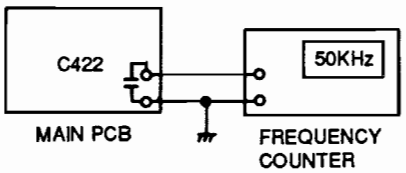
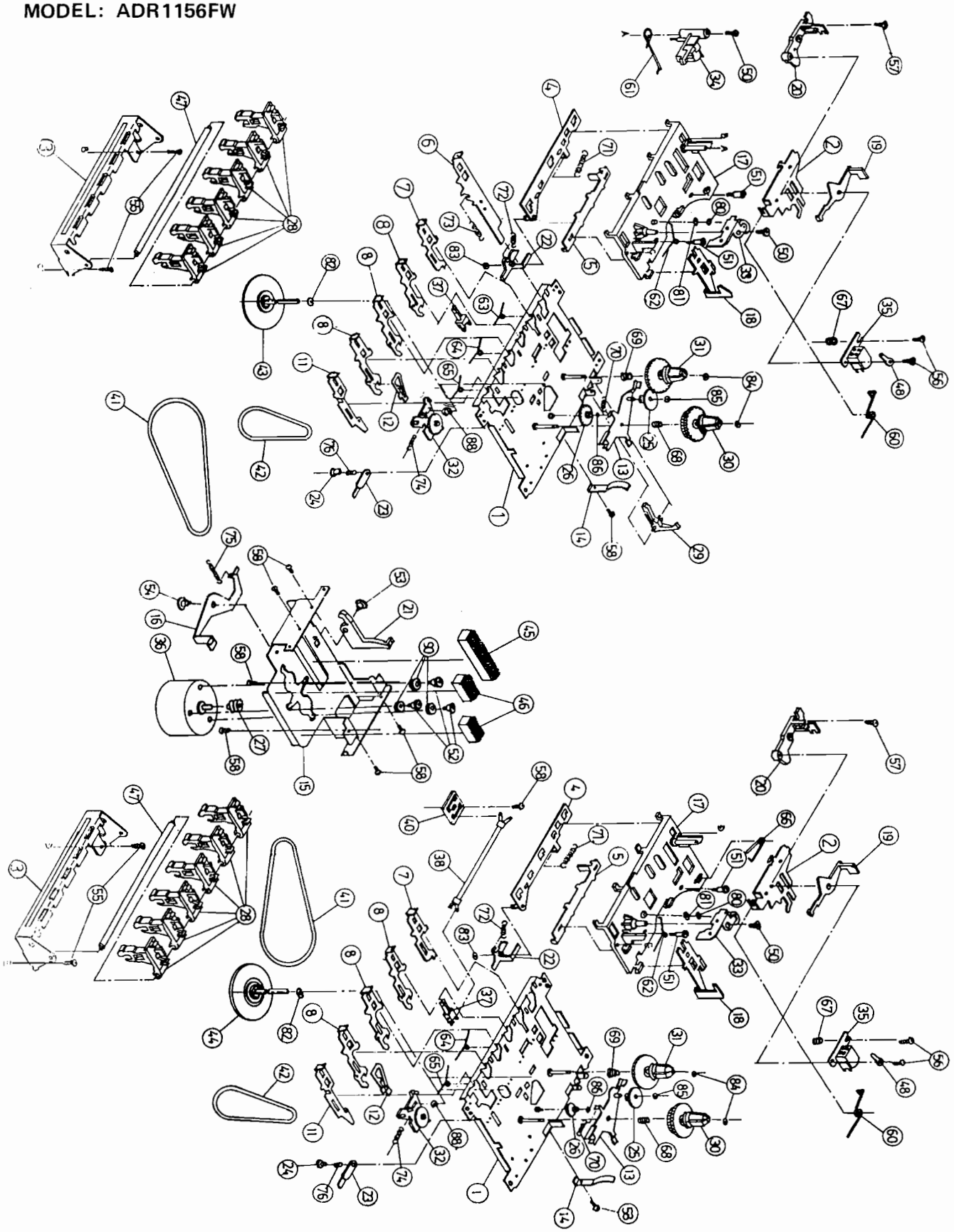


Fig. 9 RECORD BIAS

DECK EXPLODED VIEW

MODEL: ADR1156FW



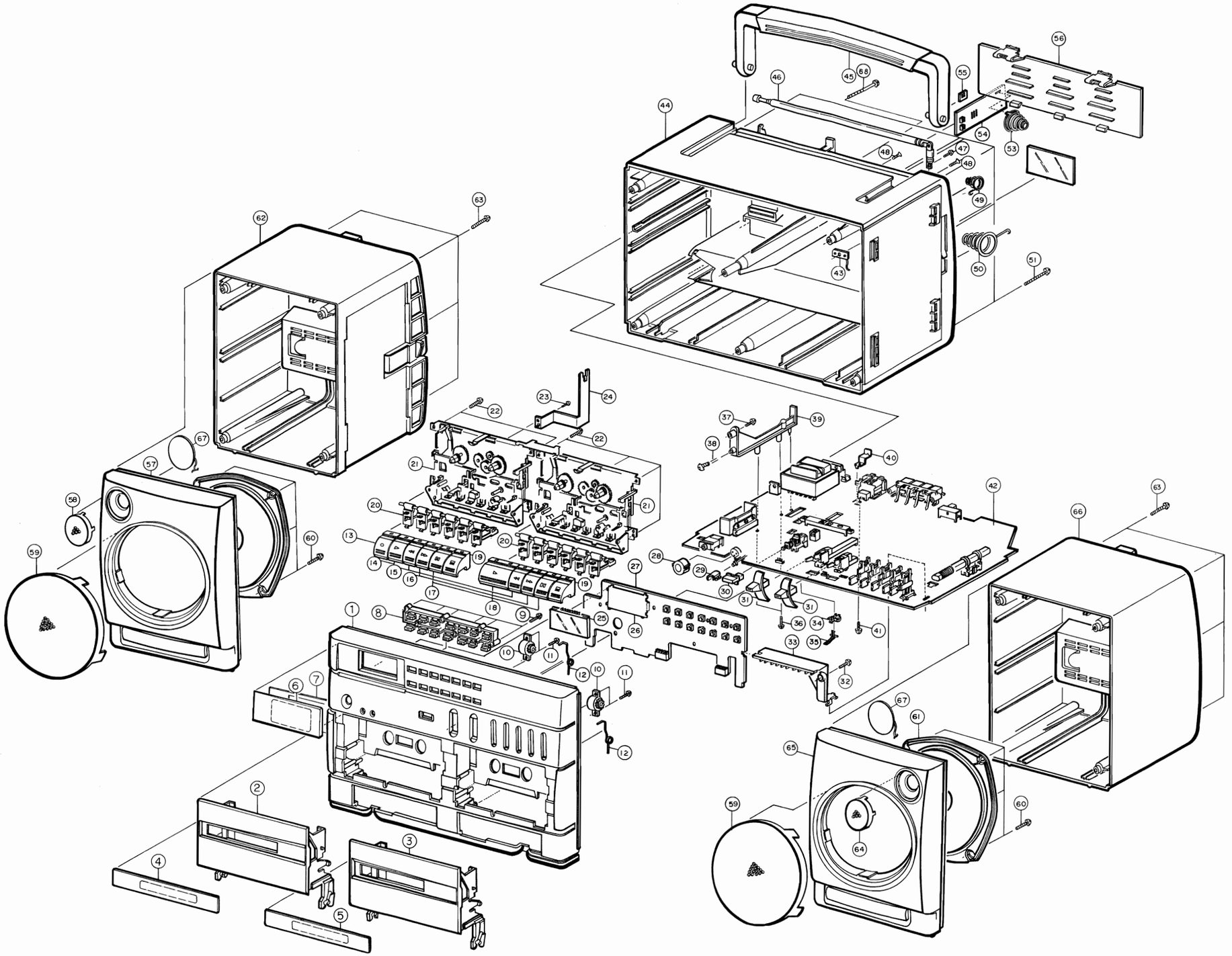
Pos.-Nr. Ref.Nr. No.de pos.	Bestell-Nr. Part No. No.de comm.
Laufwerk **Drive mechanism** **mécanisme d'entraînement**	**5863 10 23**
20	7538 34 30
28	8681 49 33
33	7538 34 29
35	4335 94 42
36	4432 93 66
41	7618 43 21
42	7618 43 22

Pos.-Nr. Ref.Nr. No.de pos.	Bestell-Nr. Part No. No.de comm.
Cabinet	
1	6134 52 69
	6134 52 71 *
2	6136 12 86
	6136 12 88 *
3	6136 12 87
4	6466 03 61
5	6466 03 62
6	6466 03 60
8	6318 46 23
13	6318 46 29
14	6318 46 24
15	6318 46 26
16	6318 46 25
17	6318 46 28
18	6318 46 31
19	6318 46 27
24	8318 58 92
29	8681 49 32
30	8318 58 94
31	8318 58 93
42	6913 10 67
44	6134 52 70
45	6341 49 84
46	4471 90 52
56	6134 52 68
61	4311 95 24
*** Luxor**	

Pos.-Nr. Ref.No. No.de pos.	Gegenstand Description Description		Bestell-Nr. Part No. No.de comm.
Integrierte Schaltungen Integrated Circuits Circuits Intégrés			
IC 1	IC KA 22495		3771 65 40
IC 201	IC TA 8132 N		3771 65 38
IC 301	IC TA 78 L 005		3771 65 41
IC 401	IC TA 8189 N		3771 65 36
IC 601	IC TA 8207 K		3771 65 37
IC 701	IC TC 93 07 AF		3771 65 39
Transistoren Transistors			
Q 1	KSC 1674-0		3614 76 53
Q 201	KSR 10007 D		3614 76 60
Q 501	KSC 900-L		3614 76 55
Q 601	KSR 10009 D		3614 76 59
Q 701	KSC 838-0		3614 76 56
Q 703	KSC 1222-L		3614 76 54
Q 901	KSA 14-0		3614 76 49
Q 902	KSD 227-Y		3614 76 58
Q 903	KSC 10008-Y		3614 76 57
Q 904	KSA 708-Y		3614 76 52
Q 905	KSA 733-Y		3614 76 51
Potentiometer Trimmer Resistors Potentiometres			
Volume			3151 80 80
Balance			3151 80 82
SVR 901			3151 80 83
Filter Filters Filtres			
CF 1			4552 69 61
CF 2			4552 69 62
CF 3			4552 69 64
BPF			4552 69 63

Pos.-Nr. Ref.No. No.de pos.	Gegenstand Description Description	Bestell-Nr. Part No. No.de comm.
Spule Coil Bobine		
L 201	AM	4543 39 05
Schalter Switches Commutateurs		
S 1		4112 74 55
S 2		4112 74 54
S 3		4112 74 52
S 4		8681 49 31
S 5		4112 74 53
Netztransformator Mains Transformer Transformateur		4511 34 85
Kopfhörerbuchse Earphone socket Casquee prise		4144 83 48
Lautsprecher Loudspeaker Haut-parleur		4311 95 24
Mikrofon Microphone		4317 02 40
Display		3686 11 44

■ EXPLODED VIEW



■ VOLTAGE CHART

Unit: Volt

IC1: KA22495/TA7358AP

PIN	1	2	3	4	5	6	7	8	9
FM	1	1.72	3.94	1.69	0	4.15	3.2	3.9	3.98

IC201: TA8132N

PIN	1	2	3	4	5	6	7	8	9	10	11	12
FM	4.18	4.15	4.17	4.18	4.18	3.53	0.7	0	4.18	0	3.59	0
AM	4.33	4.31	4.34	4.04	4.35	3.74	0.2	0	4.35	1.59	2.82	0
PIN	13	14	15	16	17	18	19	20	21	22	23	24
FM	0.9	0.9	3.54	3.42	3.3	0.63	0.89	3.4	4.28	4.1	4.29	4.29
AM	0.9	0.9	3.86	5.15	4.2	0.63	1.36	3.9	4.3	3.63	4.36	4.36

IC701: TC9307AF-004 (TC9307AF-012)

PIN	1	2	3	4	5	6	7	8	9	10	11
FM	0	0	0	0	4.7	4.7	4.7	4.7	1.8	3.23	3.23
AM	0	0	0	0	4.7	4.7	4.7	4.7	1.8	3.2	3.2
PIN	12	13	14	15	16	17	18	19	20	21	22
FM	3.2	3.2	3.2	3.2	3.2	4.7	3.2	3.2	3.2	3.2	3.2
AM	3.2	3.2	3.2	3.2	3.2	4.7	3.2	3.2	3.2	3.2	3.2
PIN	23	24	25	26	27	28	29	30	31	32	33
FM	3.2	3.2	3.2	0	4.7	0	0	0	0	0	1.8
FM	3.2	3.2	3.2	0	0	0	0	0	0	0	2.0
PIN	34	35	36	37	38	39	40	41	42	43	44
FM	0	0	0	0	0	4.7	2.2	1.9	4.7	0	0
AM	0	0	0	0	0	4.7	2.2	1.9	4.7	0	0

IC601: TA8207K

PIN	1	2	3	4	5	6	7	8	9	10	11	12
PLAY	8.15	4.25	8.46	4.7	0.6	0	0	0.6	0	4.2	8.1	8.98

IC401: TA8189N

PIN	1	2	3	4	5	6	7	8	9	10	11	12
A-PLAY	0	0	1.3	1.36	1.3	1.3	0	0	2	1.3	0	0
B-PLAY	0	0	1.3	1.36	1.35	0	0	0	2	1.3	0	0
NORMAL	0	1.2	1.26	1.3	1.3	1.26	0	0	2	1.3	0	0
HIGH	0	1.1	1.26	1.3	1.3	1.26	0	0	2	1.3	0	0
PIN	13	14	15	16	17	18	19	20	21	22	23	24
A-PLAY	0.85	0	1.3	2	1.44	6.0	0	1.35	1.35	1.26	0	0
B-PLAY	0.85	0	1.3	2	1.44	6.0	2.91	1.35	1.35	1.26	0	0
NORMAL	0.85	0	1.3	2	1.43	6.0	2.9	1.31	1.31	1.26	1.4	0
HIGH	0.85	0	1.3	2	1.43	6.0	2.9	1.31	1.31	1.26	1.4	0

IC301: TA78L 005/MC78L05AC

PIN	1	2	3
RADIO	8.84	0	5.14

TRANSISTOR

LOCA.NO.	Q301	Q302	Q1	Q201	Q202	Q401	Q402	Q901	Q903	Q902	Q905	Q501	Q551
	RADIO	RADIO	FM	FM	FM	REC	PLAY	PLAY	PLAY	PLAY	PLAY	RADIO	RADIO
E	0	0	3.5	0	0	0	0	8.2	6.06	0	5.1	0	0
B	0.3	0.68	4.16	0.22	0.6	0	0	8.9	6.7	0	5.1	0.4	0.55
C	0.7	3.45	4.1	0	0	5.47	5.5	8.9	8.8	8.9	0	0.4	0.63

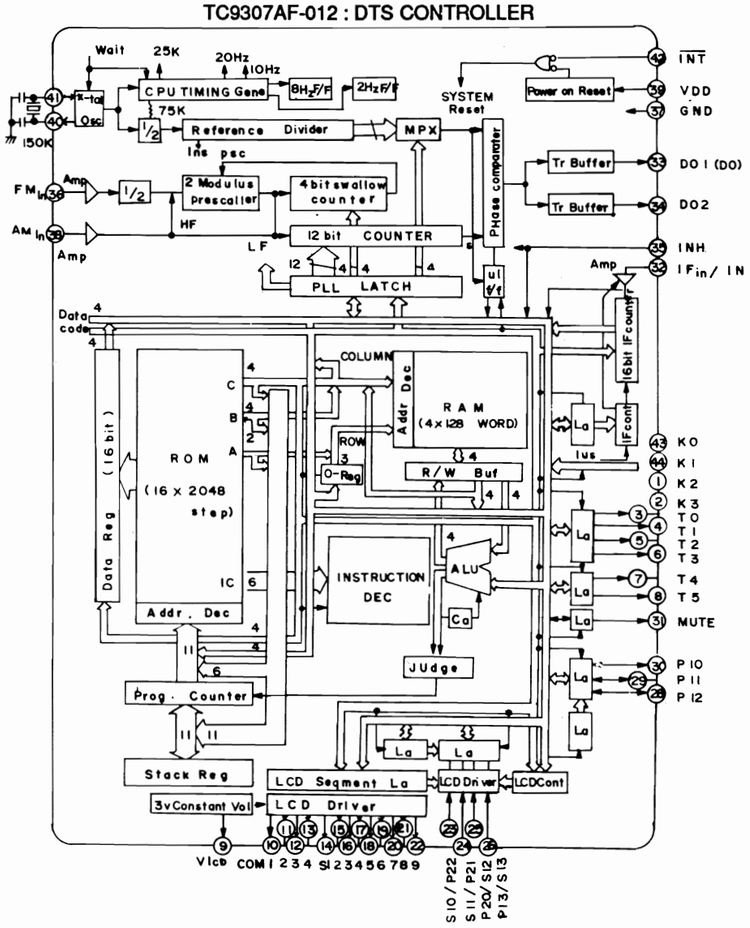
E: Emitter

B: Base

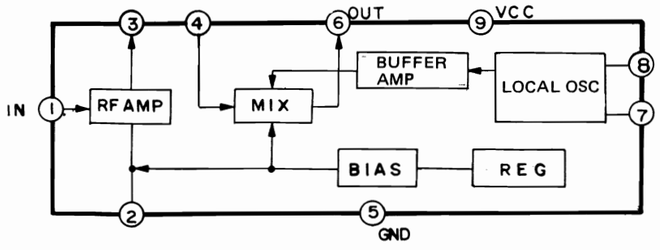
C: Collector

■ IC AND TRANSISTOR INTERNAL DIAGRAM

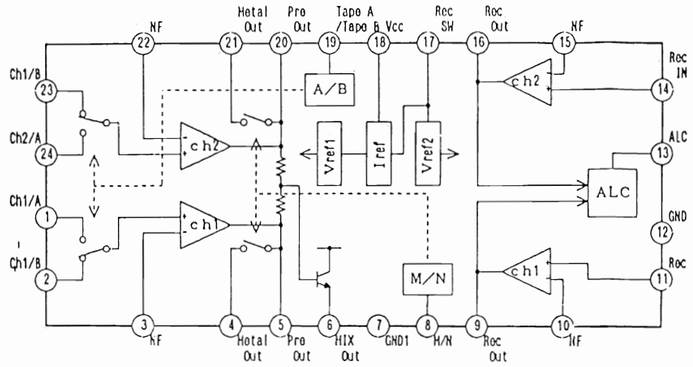
IC 701 TC9307AF-004 : DTS CONTROLLER
TC9307AF-012 : DTS CONTROLLER



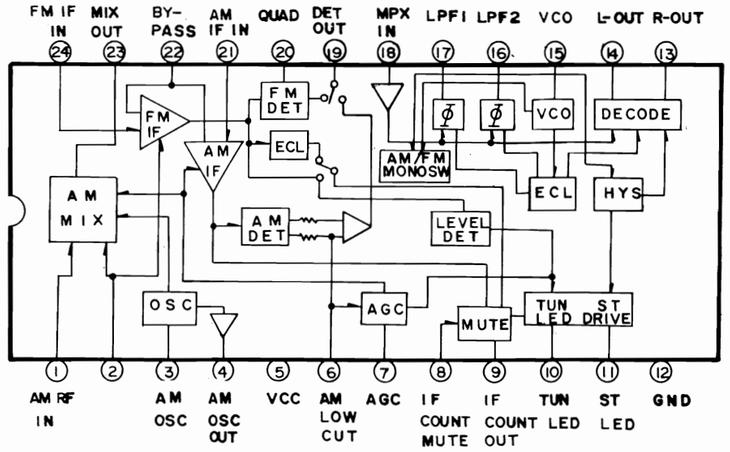
IC 1KA22495/TA7358AP : FM FRONT END



IC401 TA8189N : PRE/REC AMP



IC201 TA8132N :TUNER



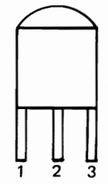
KSA 614-O
B C E
PNP

KSA 708-Y
KSA 733-Y
E B C
PNP

KSC1008-Y
KSC 945-Y
KSC1674-O
KSC 900L
KSD 227-Y
KSC 838-O
KSC1222-L
E B C
NPN

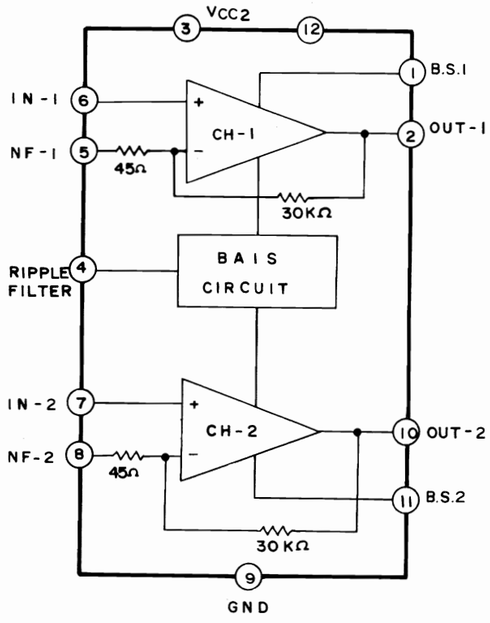
KSR1009
KSR1007
E C B
NPN

TA78L005/MC78L05AC
: IC301 (REGULATOR)



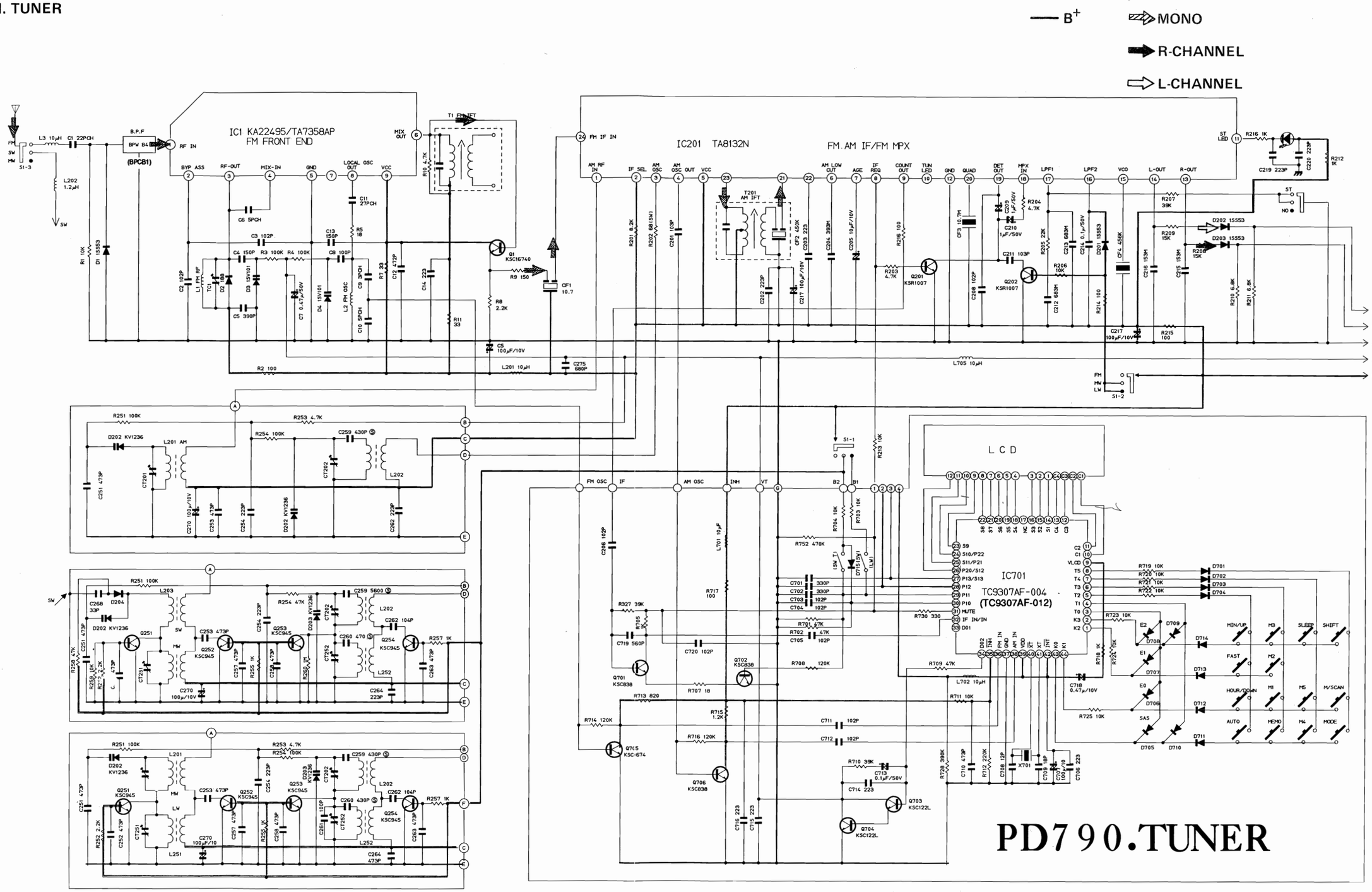
1. OUTPUT
2. GND
3. INPUT

IC601 TA8207K : POWER AMP



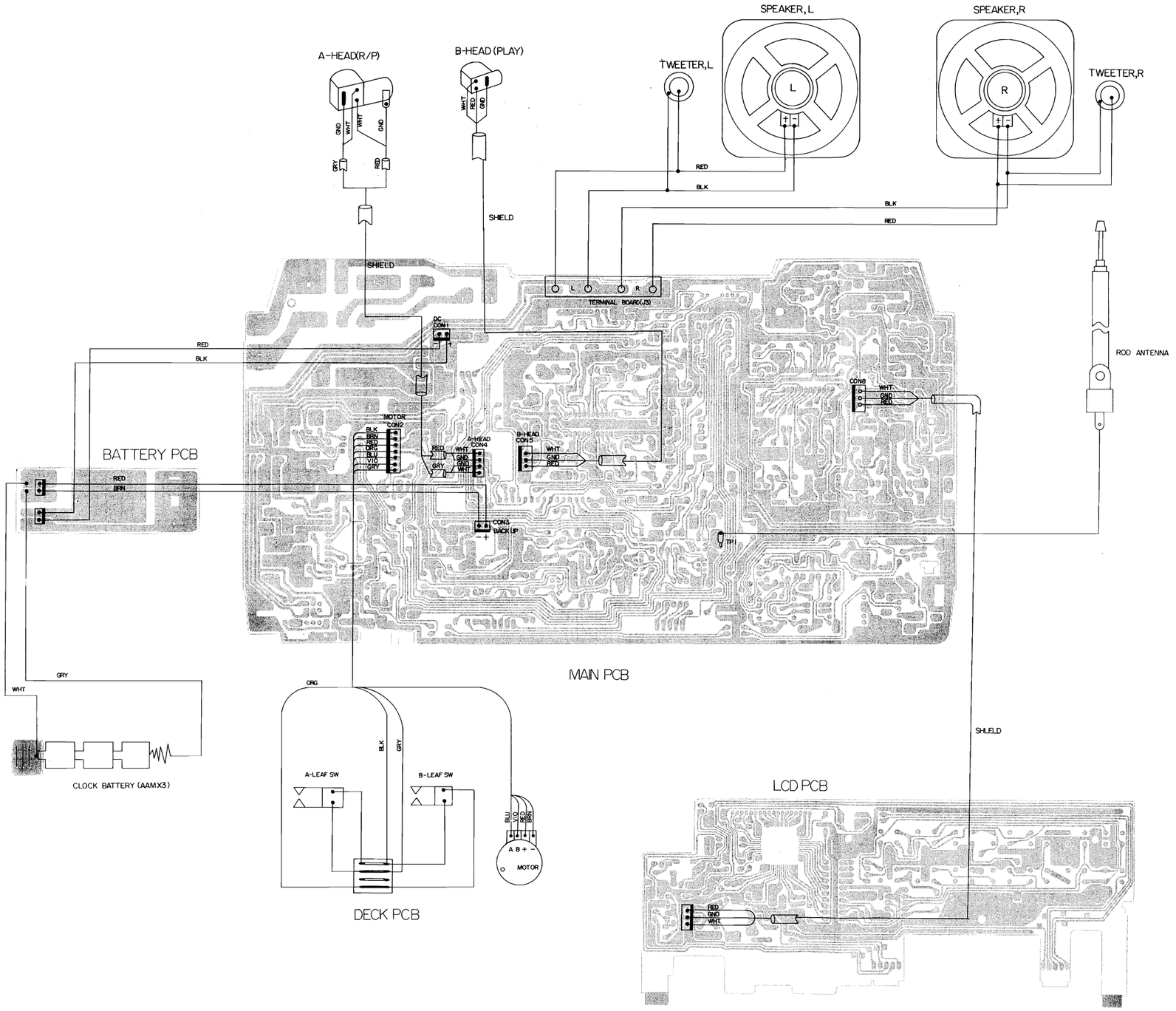
■ SCHEMATIC DIAGRAM

1. TUNER

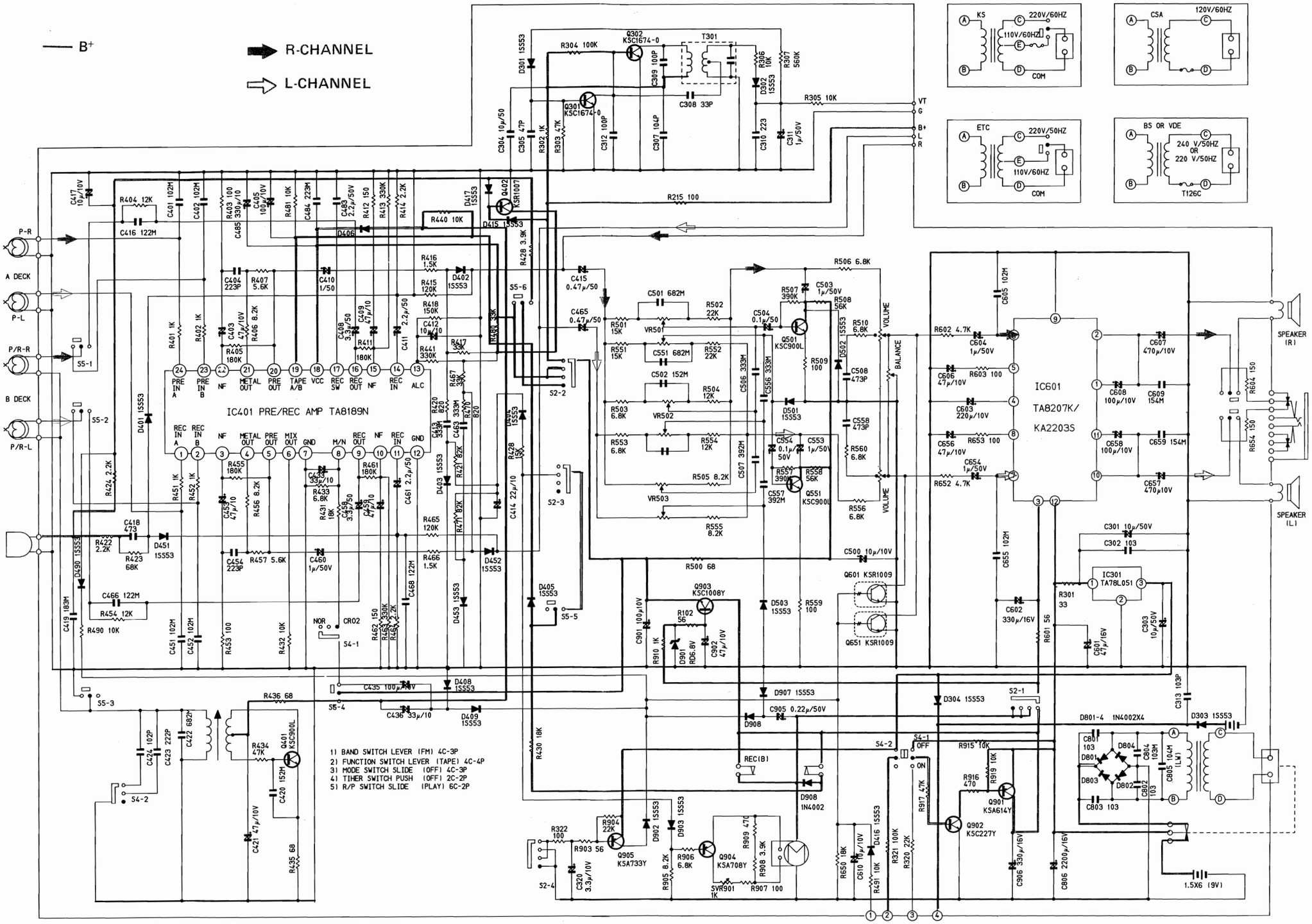


( ) = OIRT ONLY

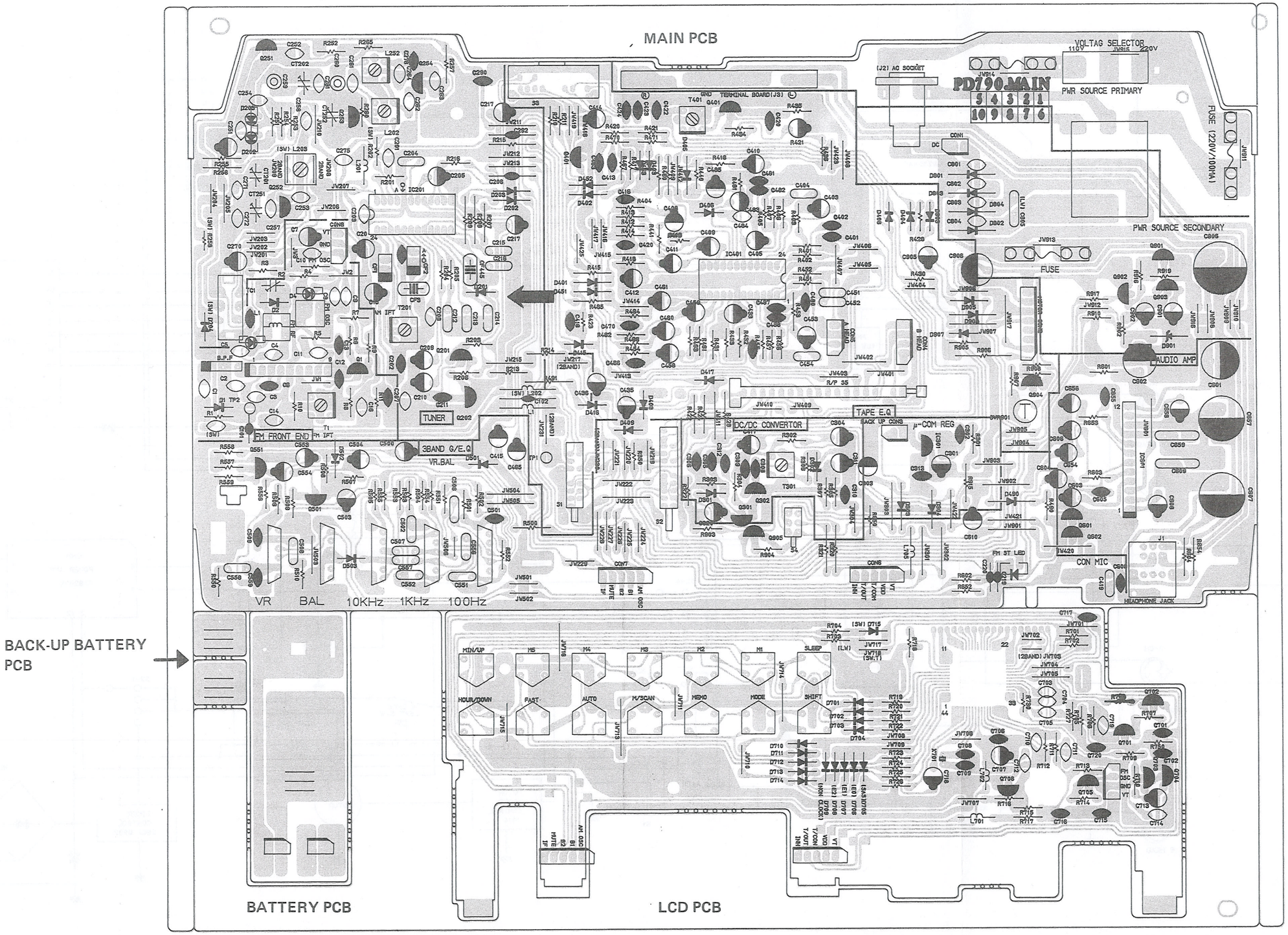
■ WIRING DIAGRAM(PARTS SIDE)



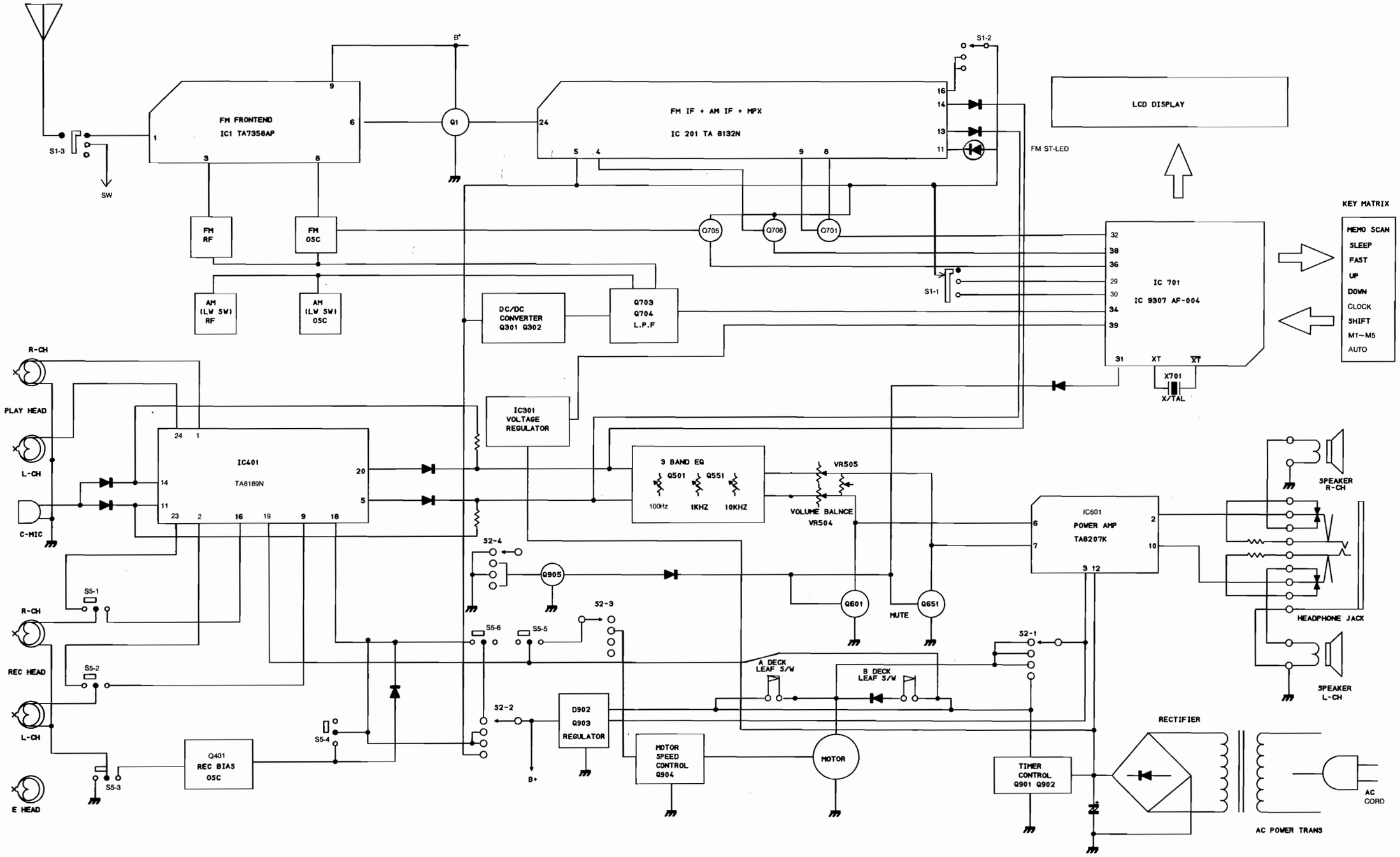
2. MAIN


B+
R-CHANNEL
L-CHANNEL
IC401 PRE/REC AMP TA8189N
IC601 TA8207K/ KA2203S
IC301 TA78L051
1) BAND SWITCH LEVER (FM) 4C-3P
2) FUNCTION SWITCH LEVER (TAPE) 4C-4P
3) MODE SWITCH SLIDE (OFF) 4C-3P
4) TIHER SWITCH PUSH (OFF) 2C-2P
5) R/P SWITCH SLIDE (PLAY) 6C-2P
KS 220V/60HZ 110V/60HZ COM
CSA 120V/60HZ
ETC 220V/50HZ 110V/60HZ COM
BS OR VDE 240 V/50HZ OR 220 V/50HZ T126C
P-R
A DECK
P-L
P/R-R
B DECK
P/R-L
SPEAKER (R)
SPEAKER (L)
VOLUME
BALANCE
1.5X6 (9V)

PCB PATTERN AND MARKING(PATTERN SIDE)



■ BLOCK DIAGRAM



Für Ihre Notizen
For your notes
Pour vos notices

Austria

Nokia Consumer Electronics GesmbH
Bergsteiggasse 36–38
A-1170 Wien
Tel.: ++43-222-43 95 21-0
Fax: ++43-222-43 95 21 46

Belgium/Luxemburg

NOKIA CONSUMER ELECTRONICS NV/SA
Uilenbaan 120
B-2160 Wommelgem
Tel.: ++32-3-3 50 05 46
Fax: ++32-3-3 50 04 45

Denmark

Nokia Consumer Electronics A/S
Hørskætten 3
DK-2630 Tåstrup
Tel.: ++45-42-52 44 44
Fax: ++45-42-52 01 52

Finland

Salora Oy/Huolto
Joesuunkatu 5
SF-24100 SALO
Tel.: ++358-24-3 01 23 36
Fax: ++358-24-3 01 23 31

France

NOKIA Consumer Electronics
France SA
97, Avenue de Verdun
F-93230 Romainville
Tel.: ++33-1-49 15 15 15
Fax: ++33-1-48 43 73 28

Germany

Nokia Unterhaltungselektronik GmbH
Zentralkundendienst
Meesmannstr. 105–107
D-4630 Bochum 1
Tel.: ++49-234-9 56 33 33
(Zentrale Ersatzteilbestellung)
Tel.: ++49-234-9 56 03
(Zentrale)
Fax: ++49-234-9 56 24 45
++49-234-9 56 24 46
++49-234-9 56 24 47
(Telefax-Bestellannahme)

Great Britain

Nokia Consumer Electronics
(UK) Ltd.
Bridgemead Close
Westmead
GB-Swindon, Wilts SN5 7YG
Tel.: ++44-793-64 42 23
Fax: ++44-793-61 99 59

Italy

NOKIA CONSUMER ELECTRONICS
ITALIA s. r. l.
Via G. di Vittorio, 10
I-20094 Corsico (MI)
Tel.: ++39-2-44 01 341
++39-2-44 74 541
Fax: ++39-2-44 71 027
Telex 320391

Netherlands

Revah-Service B.V.
Vaalserbergweg 317
NL-5628 CH Eindhoven
Tel.: ++31-40-41 55 25
Fax: ++31-40-42 07 55

Norway

Nokia Consumer Electronics A/S
P. O. Box 94
Solheimvn. 28 B
N-1473 SKÅRER
Tel.: ++47-2-97 09 30
Fax: ++47-2-97 34 14 (Administration)
++47-2-97 34 15 (Orders)
++47-2-97 34 16 (Parts)

Portugal

NOKIA ELECTRONICA DE CONSUMO S. A.
SERVICO DE ASSISTENCIA APOS VENDA
E FORMACAO
Rua Carlos Anjos, Lote 1387
Amoreira
P-2765 Estoril
Tel.: ++351-1-466 23 15/62/63
Fax: ++351-1-466 23 14

Rep. Ireland

Nokia Smurfit Ltd.
Shanowen Road
White Hall
IR-Dublin 8
Tel.: ++35-31-42 39 66
Fax: ++35-31-42 34 73

Spain

Nokia Consumer Electronics Espana SA
Asistencia Técnica Central
Francisco Abril, 13
E-28007 Madrid
Tel.: ++34-1-433 15 62/433 12 62
Fax: ++34-1-433 57 45

Switzerland

NOKIA Consumer Electronics
(Schweiz) AG
Bahnhofstrasse 34
CH-8107 Buchs/ZH
Tel.: ++41-1-8 46 21 11
Fax: ++41-1-8 44 15 47

Sweden

NOKIA PARTS
S-591 83 MOTALA
Tel.: ++46-141-2 81 00
Fax res. delar: ++46-141-1 19 51
Fax service: ++46-141-5 49 48